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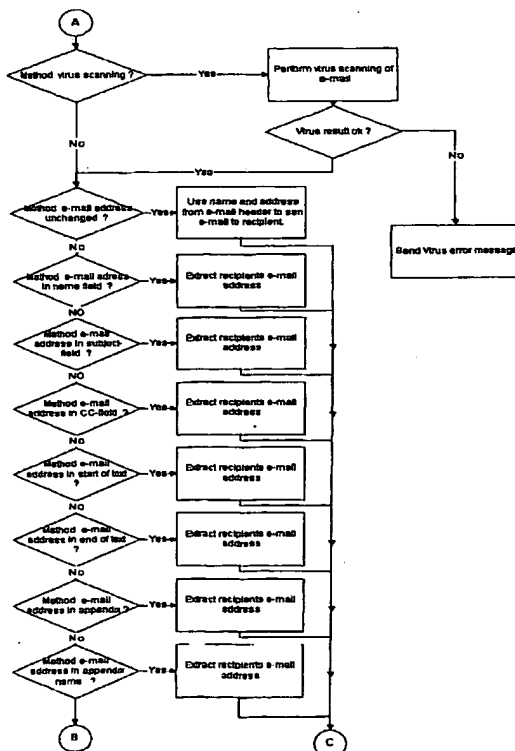
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(54) Title: METHOD AND DATA PROCESSING SYSTEM FOR MANAGING, TRACING AND AUTHENTICATING ELEC-  
TRONIC DATA TRANSMITTALS SUCH AS E-MAIL, AND FOR EXTRACTING ELECTRONIC ADDRESSES



(57) Abstract: A method and system for recording, verifying, tracing and authenticating electronic transmittals between senders and recipients. The method comprising the steps where a service provider receives a first electronic transmittal from a sender, stores an electronic code, generates a reference code which uniquely identifies the first transmittal, extracts a recipient electronic address, and forwards the transmittal to a recipient designated by the sender. the system comprises first-and second computer processing means (100, 200), each capable of generating, storing, sending, receiving, and processing electronic data transmittals; third party computer processing means (300) comprising means for extracting from a sender's first electronic data transmittal, the electronic address of the recipient, as designated by the sender; a third party client application (400); a third party data administration means (500); and a third party database (600).

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**METHOD AND DATA PROCESSING SYSTEM FOR MANAGING, TRACING  
AND AUTHENTICATING ELECTRONIC DATA TRANSMITTALS SUCH AS  
E-MAIL, AND FOR EXTRACTING ELECTRONIC ADDRESSES**

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**BACKGROUND OF THE INVENTION**

**Field of the Invention**

This invention relates to the field of electronic communication by way of networks.

10 More specifically, the invention relates to a method and system for managing, recording, tracing and authenticating electronic transmittals, such as e-mail, between senders and recipients, and for extracting recipient electronic addresses from electronic transmittals, such as e-mail.

15 **Description of the Related Art**

Electronic transmittals on the Internet, such as e-mail, has rapidly become an established – albeit informal – means of communication. It is a growing tendency, however, for e-mail also to be used for transmitting more formal types of  
20 correspondence (e.g. official statements and instructions, regular business letters, invoices, etc.). However, as the credibility and authority of formal correspondence rest i.a. on its authenticity (e.g. signed hard copy) and proof of transmittal (e.g. registered mail), existing e-mail systems are not suitable for transmitting formal correspondence.

25 In order for e-mail to become a reliable means for (e.g. formal) communication and comparable in authenticity with conventional hard copy mail, the e-mail system must for example be able to record and prove:

- that the piece of correspondence indeed was sent,
- the date and time when the correspondence was sent,
- 30 - the name and address of the intended recipient,
- the name and address of the sender,
- that the electronic transmittal is authentic, i.e. not subsequently changed.

In brief, as both sender and recipient may alter today's e-mails, there is a need for a third party providing a system and method for managing and authenticating all aspects  
35 of electronic transmittals.

Several systems and methods pertaining to e-mail correspondence are known in the art. U.S. Patent No. 5,632,018 ("Electronic mail system") discloses a system where a user who received a broadcast message, broadcasts a response answering the broadcast message. A sender Y of the broadcast message sends to an electronic mail system  
5 through the broadcast message together with identification information on addressees of the broadcast message, and then issues a request to broadcast the message. The electronic mail system sends the message together with the identification information on the addressees of the message to each terminal of users A, B and C as specified by sender Y. On receiving the message, user A generates a response answering the  
10 received message, and sends it to the electronic mail system. User A also sends to the electronic mail system the identifiers of users B and C as identification information on addressees of the response according to the received identification information on the addressees of the broadcast message, and then requests the system to broadcast the response. Then, the electronic mail system sends the response to users B and C and  
15 sender Y. Thus, user A can be informed of other receivers of the broadcast message and sends the response to users B and C without a troublesome operation of inputting addresses of the response.

U.S. Patent No. 6,035,104 ("Method and apparatus for managing electronic documents  
20 by alerting a subscriber at a destination other than the primary destination") discloses an e-mail system implemented on a server having a network connection which receives and forwards e-mail messages based on subscriber-supplied criteria. When a message is received addressed to the subscriber, characteristics of the message, such as existence of and size of attachments, are compared to characteristics previously supplied by the  
25 subscriber. If a match is found, the subscriber is notified, such as by a page to a pager carried by the subscriber, of the message and the nature of the match. Facility is provided at the server for the subscriber to then call the server, log on, and provide instructions for forwarding the matched message. Forwarding may be to such as a hand-held device or a notebook computer operated by the subscriber, or to a mailbox or  
30 mailboxes on other servers, or any combination. A subscriber is then in control of points of delivery of incoming e-mail messages.

While the two foregoing U.S. Patents disclose methods and systems for forwarding e-mails as such, they do not disclose methods for address extraction, e-mail forwarding  
35 and authentication that solve the problems identified above, and which are disclosed in present disclosure.

U.S. Patent No. 5,844,969 ("Communication system, method and device for remotely re-transmitting received electronic mail directed to a destination terminal to a new destination terminal") discloses a communication system for remotely re-selecting and re-transmitting received electronic mail at a destination terminal to another destination terminal using a remote communication device, e.g., a two-way pager. This disclosure also pertains more to alerting a user of an incoming e-mail, does not solve all of the above mentioned problems.

U.S. Patent No. 5,771,354 ("Internet online backup system provides remote storage for customers using IDs and passwords which were interactively established when signing up for backup services") discloses a system enabling a customer computer to connect to an online service provider computer by phone, Internet, or other method, pay a fee to said service provider, and obtain additional processing and storage resources for the customer's computer. The resources can take the form of virtual storage and processing capabilities. While this disclosure solves a problem pertaining to electronic storage, other aspect of the present invention, are not addressed.

The following publications have also been considered, but do not pertain directly to the present invention: U.S. Patent No. 5,379,418 ("Highly reliable online system"), U.S. 5,325,430 ("Encryption apparatus for computer device"), U.S. 5,089,958 ("Fault tolerant computer backup system"), U.S. Patent no. 5,557,723 ("Method and system for customising forms in an electronic mail system").

U.S. Patent No. 6,122,632 ("Electronic message management system") discloses a management system for electronic messages, or e-mails, having a digital computer for accepting e-mail messages, a program interface for automatically transferring received electronic messages to a database, a structured database for storing the received electronic messages in a predetermined format, and an interface for allowing a customer service representative, at a remote computer, to access and respond to, the electronic message stored at the database.

U.S. Patent No. 5,944,787 ("Method for automatically finding postal addresses from e-mail addresses") discloses an e-mail mapper for identifying a sender's U.S. postal address. The method comprises detecting in the sender's e-mail address, e-mail message, or the sender's posting, whether the sender's name and address are identifiable in the signature line of the sender's e-mail and searching one or more electronic white pages to identify the sender's name and e-mail address. If no signature line is detected

in the sender's e-mail, the method provides for further filtering of the sender's e-mail to identify the geographic locale of the sender and then searching against one or more electronic databases, such as a business database, an ISP database, an electronic whitepage, or e-mail mapper's generated relational database, to identify and generate a list of one or more USPS addresses associated with the sender's e-mail address, name and locale of the sender.

U.S. Patent No. 5,859,967 ("Method and system for relaying communications from authorised users") discloses a method and system for converting an e-mail message to a facsimile only for authorised users of an account which has been previously created. After a user registers and provides an e-mail address and appropriate billing information, stamps or authorisation codes are transmitted to the user via e-mail. When the user desires to have an e-mail message transmitted via facsimile to another party, the user transmits, from a registered account, an e-mail message which includes the fax number to which the facsimile is to be transmitted and contains a stamp. A computer operated by a service provider receives the e-mail message, checks to see that the e-mail message originated from a valid account, and contains a valid stamp. The stamp is then removed from the e-mail, the e-mail is converted to an image that is transmitted via facsimile to the appropriate telephone number, and the account that was previously registered is billed.

U.S. Patent No. 5,930,479 ("Communications addressing system") discloses a system and method for sending and receiving authorised messages from a sender to a recipient in a network. The method and system makes use of a channelled address to send the message. The channelled address comprises a common address portion that indicates the identity of the recipient in the network and a channel identifier portion for verifying that the message is authorised for delivery to the recipient.

While the cited publications to varying extent address some of the problems identified above, none of these publications present a coherent method and system for managing, recording, tracing and authenticating electronic transmittals. It is therefore a long felt need for a system and method that offers credibility and authority to correspondence transmitted by e-mail, thus making e-mail a reliable means for (e.g. formal) communication and equal in authenticity with conventional hard copy mail.

The present invention solves the needs identified above, in that it provides an impartial and objective third party system and method for managing and authenticating all aspects of electronic transmittals.

## BRIEF SUMMARY OF THE INVENTION

5  
These and other objects and features of the invention are provided by a method for recording, verifying, tracing and authenticating electronic transmittals between senders and recipients, where the method comprises steps where an objective and impartial third  
10 party (a service provider) receives an initial (first) electronic transmittal (e-mail) from a sender, stores an electronic code, generates a reference code which uniquely identifies the initial e-mail, extracts a recipient electronic (e-mail) address, and forwards the initial or original, unaltered e-mail to a recipient designated by the original e-mail sender.

15 The present invention also provides a method for extracting recipient(s) e-mail address(es) from e-mail(s) sent by sender(s) to the service provider, but ultimately intended for the designated recipient(s). The recipient e-mail address may be extracted from:

- the field containing the recipient name, in that the address is separated from the  
20 recipient name by enclosing the address by means of parentheses, brackets, or other delimiters,
- the "subject" field in the header field of the e-mail,
- the "cc" field in the e-mail header field,
- the first line in the e-mail message field,
- 25 - the last line in the e-mail message field,
- any line within the e-mail message field, where the address is separated from other text by enclosing the address by means of parentheses, brackets, or other delimiters,
- the part of the e-mail header field that is available for optional text, or
- the "bcc" field in the e-mail header field.

30 Alternatively, the recipient e-mail address may be contained in an e-mail attachment, where such attachment has a predetermined name, or the recipient e-mail address is communicated as a name of an e-mail attachment. If any text, other than the recipient e-mail address, is present in the above mentioned field or attachment selected to be used to convey the recipient address, then the recipient e-mail address is separated from that  
35 other text by means of parentheses, brackets, or other delimiters.

The present invention also provides a data processing system for managing such electronic transmittals (e.g. e-mails). The system comprises first- and second computer processing means (typically personal computers), capable of generating, storing, sending, receiving, and processing e-mails. The system furthermore comprises:

- 5 - a third party (service provider) computer for extracting the recipient e-mail address, as designated by the sender, from the sender's first, or original, e-mail,
- a service provider client application,
- a service provider data administration unit(s); and
- a service provider database.

10 Preferred features of the method and system according to the invention are disclosed in dependant claims 2 – 23, 25 – 28, and 30 – 45.

### BRIEF DESCRIPTION OF THE DRAWINGS

- 15 • FIG. 1a through FIG. 1c shows a flowchart of the method according to a preferred embodiment of the present invention;
- FIG. 2 is a block diagram of the data processing system according to an embodiment of the present invention, showing the first computer processing means as being the sender of the first electronic data transmittal, and the second computer processing means as being the recipient of the third party electronic data transmittal;
- 20 • FIG. 3 is a block diagram of the data processing system according to an embodiment of the present invention, similar to that of FIG. 1, but showing the second computer processing means as being the sender of the first electronic data transmittal, and the first computer processing means as being the recipient of the third party electronic data transmittal;
- 25 • FIG. 4 defines the address format, FIG. 4a indicating the sender and FIG. 4b indicating the recipient;
- FIG. 5a through FIG. 5i are illustrations of the preferred embodiments of entering the recipient address in order for these to be extracted by the service provider;
- 30 • FIG. 6 displays an exemplary message table according to a preferred embodiment of the present invention, containing data pertaining to e-mail received in the mail box "via@enotarius.no;
- FIG. 7 displays an exemplary client table according to a preferred embodiment of the present invention, containing an overview of the clients having used the service provider;
- 35



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- FIG. 8 displays an exemplary receipt table according to a preferred embodiment of the present invention, containing an address list of recipients having received e-mail via the service provider.

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## DETAILED DESCRIPTION OF THE INVENTION

The preferred embodiment of the invention will now be described in detailed, with  
5 reference to the accompanying drawings, where like reference numerals designate identical or corresponding parts, processes, fields or signals.

The flowchart in FIG. 1 shows an embodiment of the method according to the invention whereby a service provider P by means of computer means 300 (which will be  
10 described later) is able to manage, record, verify, trace and authenticate electronic transmittals (e.g. e-mails) between senders S and recipients R. The method comprises the following main steps where the service provider:

- receives an (e.g.) e-mail from a sender;
- stores an electronic code,
- 15 - generates a reference code which uniquely identifies the e-mail;
- extracts the e-mail address of the designated recipient; and
- forwards the e-mail to the recipient designated by said sender.

The service provider may be any entrusted third party, i.e. an independent entity  
20 specialising in electronic information processing and management and/or other, associated, services such as issuing electronic keys and certificates.

The service provider may also be any supplier who is integrating the method according to the present invention into its other e-mail-related services. Such other e-mail services  
25 may comprise relaying, managing and processing e-mail on the Internet. One example of such e-mail services is "HotMail", which easily may adapt the invented method. HotMail is a type of e-mail service where senders and recipients are not dependent on utilising any e-mail reader. The user interface for generating, sending, receiving and reading e-mail is available on a web page. Therefore, no special tools or mechanisms for  
30 extracting the recipient's e-mail address are necessary.

This is also the case for e.g. "online.no", which serves as a mail office or mail server. The communication between the sender's e-mail reader and the mail server is through a protocol (POP3 or similar). The address data in the e-mail header is not changed during  
35 the communication between the sender and the service provider. Special procedures for extracting information pertaining to the recipient's address, is therefore in that case unnecessary.

When the service provider receives an e-mail, it stores an electronic code which is either a copy of the initial e-mail, or a hash code or other control value generated as a mathematical function of the e-mail content. The e-mail copy may contain the entire original e-mail, including the address information, or just the actual message. Either way, the address data is stored in a database that is recording each transmittal with the associated sender- and recipient names, and relevant time stamps. It is thus a requirement that transmittal header is stored with the message. The information is stored by time (date), by sender or by recipient in a designated file system. The storage medium may comprise tape, compact disk or similar means. The message may also be stored in a data base system which is copied regularly (back up) onto one or more storage media.

Hash codes, which may be regarded as advanced checksums, are normally used to verify whether an electronic document has been changed. Any change, however small, between an original and another document, will be detected, as the two documents being compared will yield different hash codes. It is considered impossible to generate a credible document which produces a given hash code. Thus, if the hash code for a given document is equal to the hash code of, say an original, stored document, then the two documents may with a great degree of certainty be considered as being identical.

Although a well known feature as such, the method also comprises a scanning of the e-mail in order to detect virus. If virus is detected, the e-mail is rejected and the sender notified accordingly.

The reference code, uniquely identifying the original e-mail, is sent back to the sender by a separate e-mail generated by the service provider. This unique reference code remains available to the sender, e.g. by the sender at any time logging on to the service provider's web page and obtaining a list of his reference codes, or the reference codes be sent to the sender by e-mail if so requested, either by individual reference code or a regularly updated list of reference codes.

The unique reference code is generated based on the content of the original (or first) e-mail, and/or is based on any data pertaining to the e-mail. The reference code may be structured such that anyone in possession of exact data pertaining to the sender, recipient and relevant time stamps, may generate the reference code manually or by means of a specially designed computer program. One possibility is to define a

customer identification number combined with pertinent e-mail data, as being a sufficient criterion for generating a reference code. The sender is thus able to independently and selectively deduce the unique reference code.

5 Furthermore, any individual having possession of the e-mail-unique reference code may request a copy of the original e-mail. A request for a copy may be submitted on a web page form, or any other suitable way. The request may be submitted to the service provider or any other party being authorised by the service provider to issue copies of stored e-mail. The copy is issued along with a confirmation of address- and time data.

10

Any individual in possession of the reference code and a copy of the original e-mail, may order a confirmation from the service provider as to whether the copy is identical to the original. This individual submits the assumed true copy to the service provider and requests a confirmation as to whether the copy is identical to the original e-mail.

15

In order for the service provider to forwarding the original (or first) e-mail to the designated recipient(s), the method according to the invention comprises a utilisation of the information contained in the e-mail transmittal field for recipient name and electronic address. The sender may also enter the recipient address in his address list at an e-mail provider such as HotMail. The message is then edited on the service provider web site and the e-mail to the recipient is entered directly into the service provider system.

20

Referring now to FIG. 4, the following electronic (or e-mail) address variables are defined:

25

Ref. #	Variable name	Example
I	full address	"JohnX DoeX"<johndoeX@doeXdomain.com>
II	name	"JohnX DoeX"
III	electronic address	<johndoeX@doeXdomain.com>
IV	electronic address first part	johndoeX
V	electronic address domain	doeXdomain.com

In the following, the sender is designated by "X" = 1, and the recipient by "X" = 2.

"John1 Doe1"<johndoe1@doe1domain.com> is therefore the generic designation for the sender's full address I, and "John2 Doe2"<johndoe2@doe2domain.com> indicates the recipient's full address I.

- 5 The recipient electronic address III may be extracted from the field containing the recipient name, in that the address is separated from the recipient name by enclosing the address by means of parentheses, brackets, or other delimiters, as exemplified in FIG. 4. Furthermore, the recipient's electronic address III may be extracted from any one of the following in the original e-mail:
- 10 - the "subject" field in the header field;
  - the "cc" field in the header field;
  - the first line in the message field;
  - the last line in the message field;
  - the part of the header field in the original e-mail which is available for optional text;
  - 15 - the "bcc" field in the header field.

The recipient's electronic address may also be contained in, and extracted from, an attachment to the original (or first) e-mail, where the said attachment has a predetermined name. The recipient electronic address may also be communicated as a

20 name of an attachment to the original e-mail.

The first e-mail transmittal is verified for the sender's signature and only forwarded to the intended recipient if the signature is valid.

- 25 Then, the first e-mail is verified for encryption. If the e-mail is sent in an encrypted state, the e-mail is decrypted when it is received by the said service provider and re-encrypted before it is forwarded to the recipient.

A key feature of the invention is a method for extracting a recipient e-mail address from an e-mail sent by a sender, where the e-mail is intended for a designated recipient (or recipients) but routed via a service provider. The service provider then employs a method whereby the recipient electronic address is extracted by one or more of the following:

30

- 35 - the recipient e-mail address is extracted from the field containing the recipient name, in that the address is separated from the recipient name by enclosing the address by means of parentheses, brackets, or other delimiters,

- the recipient e-mail address is extracted from the "subject" field in the e-mail header field,
- the recipient e-mail address is extracted from the "cc" field in the e-mail header field,
- 5 - the recipient e-mail address is extracted from the first line in the e-mail message field,
- the recipient e-mail address is extracted from the last line in the e-mail message field,
- the recipient e-mail address is contained in an e-mail attachment, where the
- 10 attachment has been given a predetermined name,
- the recipient e-mail address is communicated as a name of an e-mail attachment,
- the recipient e-mail address is extracted from the part of the e-mail header field that is available for optional text, or
- the recipient e-mail address is extracted from the "bcc" field in the e-mail header
- 15 field.

If the recipient is not registered in the service provider data base, the service provider attaches an electronic message to the first e-mail and forwards both as one transmittal to the recipient designated by the sender.

20 The invented method applies to any user, also if the service provider previously has been selected by the sender to act as his sole and regular e-mail provider.

The method described above may be accomplished by means of a system which will

25 now be described with reference to FIG. 2 and FIG. 3.

The invented data processing system for managing electronic transmittals, comprises:

- a) a sender's (first) computer **100** and a recipient's (second) computer **200**, where each are capable of generating, storing, sending, receiving, and processing electronic
- 30 data transmittals such as e-mail;
- b) the service provider (third party) computer system **300**, which is capable of extracting the e-mail address of a recipient designated by the sender, from the sender's first e-mail;
- c) the service provider's client application **400**;
- 35 d) the service provider's data administration means **500**; and
- e) a third party database **600**.

As shown in FIG.2, the service provider computer **300** manages the e-mails by:

- receiving a first e-mail **1** from a sender's (e.g. **100**) computer;
- at the option of sender, storing copies of the first e-mails along with pertinent information, on a secure storage medium **390**;
- 5 - at the option of the sender, storing a control code generated based on the transmitted content pertinent information, such as a time stamp for when said data transmittals was sent by said sender, or a unique reference number;
- allocating a unique reference number to individual ones of said first electronic data transmittals;
- 10 - forwarding said first e-mails to a recipient designated by sender, constituted by at least one unit of the other one of said first and second computer processing means;
- recording, generating and storing pertinent information associated with the transmittals; and
- communicating pertinent information relative to the e-mails, to the sender and the  
15 recipient.

The service provider (third party) processing means further comprises:

- a mailbox **301** for receiving the first e-mail from the sender;
- a mailbox **302** for returning to the sender a proof of receipt of the first e-mail, along  
20 with the unique reference number;
- a mailbox **303** for dispatching error messages to the sender;
- a mailbox **304** for forwarding the first e-mails to the recipient designated by the sender;
- a mailbox **305** for receiving from the recipient, requests for copies of the first e-  
25 mail; and
- a data processor **350** for processing data and providing communication between the various units.

The extracting means comprises means for extracting said recipient's electronic address  
30 from the name part of the address field in said sender's first electronic data transmittal, said address field comprising both the electronic address of said third party, and the full address of the recipient designated by the sender.

The means for extracting addresses, may extract the recipient's address from the first e-  
35 mail subject field, or any other field or attachement, as described above.

The extracted recipient address is stored with the service provide, and the extracted address is entered in a separate e-mail, generated by the third party (service provider), to the designated recipient. This e-mail, sent by the service provider, contains the first original, as sent by the sender, pertinent information regarding the sender, and pertinent  
5 information about the service provider.

The sender, having received a unique reference number, may at any time obtain a copy of the first e-mail as stored with the service provider data base, by sending a request to the service provider. The stored first e-mail are retrievable by anyone in possession of  
10 the reference number and may be compared for authenticity with any transmittal sent to the service provider.

The service provider computer processor enables verification of an electronic signature which is included in the first e-mail. When the electronic signature has been verified,  
15 this electronic signature is also included in the forwarded transmittal.

As describe above, the service provider computer processing means may decrypt and encrypt the first e-mail, if specified.

20 In FIG. 2 and FIG. 1, the first and second computer processing means may be a sender and a recipient, respectively, or vice versa. It is understood that the first and second computer processing means may be one or more of a number of computer processing units.

25 The following is an exemplary description of the system and method according to the invention. Reference is also made to the flowchart in FIG. 1.

1. A sender, John1 Doe1, wants to send a document to a recipient, John2 Doe2. Their addresses are "John1 Doe1"<johndoe1@doe1domain.com> and "John2  
30 Doe2"<johndoe2@doe2domain.com>, respectively.

2. Having read the instructions for use on eNotarius.no, John1 Doe1 sends an e-mail with the following header:

35 From: "John1 Doe1"<johndoe1@doe1domain.com>  
To: "John2 Doe2"(johndoe2@doe2domain.com)"<via@enotarius.no>  
Title : "Invoice for services rendered"



3. The service provider mail box (via@enotarius.no) receives and reads the e-mail.

4. If the sender is excluded, or the signature invalid, or decryption unsuccessful,  
then the e-mail is returned to sender with an appropriate message.

If not, a new entry is generated in the Message Table:

Field	Format	Contents	Example
MailID	number	Unique reference number on received first e-mail	123456
ClientID	number	Sender's customer code	1234567890
Type	number	Type of mail 1. Via	1
Country	number	National mailbox used to send e-mail.	47
From	address	Sender, contents of "From"	"John I Doe1"<johndoe1@doe1domain.com>
ReceiptID	number	Recipients's ID nummer	
Subject	text	Title of first electronic data transmittal, contents of "Subject"	Invoice for services rendered
Time	time	Timestamp for arrival at mailbox	15/06/2000 13:57:23.852
Message Size	number	Size of first electronic data transmittal (Bytes)	12367
Message Status	number	0 = Receive_error 1 = Receive_ok 2 = Transmitted_to_recipient 3 = Transmit_Error_recieved	1
Sign Status	number	0 = unsigned 1 = signature ok	1

5. The e-mail is stored in the service provider file storage system.

6. The e-mail provider extracts the recipient address, i.e.:

"John2 Doe2"<johndoe2@doe2domain.com>

If extraction fails, a corresponding error message is transmitted to the sender.

8. The service provider searches for the recipient address in the Receipt Table. A new entry is generated in the Receipt Table if the recipient is not found.

Field	Action	Example
ReceiptID	New	1234
To	= recipient interpreted from e-mail header	"John2 Doe2"<johndoe2@doe2domain.com>
Firsttime	= now	15/06/2000 13:57:23.852
Number	Set to 0	0

5

9. Updating Message Table

Field	Action	Example
MailID	-	123456
ClientID	-	-
MessageType	-	1
Country	-	47
From	-	"John1 Doe1"<johndoe1@doe1domain.com>
ReceiptID	= ReceiptID from Receipt Table	
Title	-	"Invoice for services rendered"
Time	-	15/06/2000 13:57:23.852
MessageSize	-	12367
MessageStatus	-	1

10. Updating Receipt Table

10

Field	Action	Example
RecipID	-	
To	-	
Firsttime	-	
Number	Incremented by 1	1

11. Retrieving sender's e-mail address from header, e.g.: johndoe1@doe1domain.com

12 Searching Client Table for entry containing:

Admin = sender's e-mail adresse

or

5 Domain = sender's domain og Clienttype = 3

13. If such entry does not exist, generate a free user.

14. Generate new entry in Client Table:

10

Field	Action	Example
ClientID	New	1234567890
ClientIncrement	-	0
ClientType	= 0	0
CompanyName	-	-
CompanyContact	-	-
SnailMailAddress1	-	-
SnailMailAddress2	-	-
City	-	-
ZipCode	-	-
Country	= 47	47
Domain	= domainene fra melding	doe1domain.com
Admin	= e-postadresse	<johndoe2@doe2domain.com>
UserSize	Set equal to lik smallest client	1
Userstatus	= 2	2
UsedSize	= 0	0
UsedNumber	= 0	0
EndDate	-	-
StartDate	= now	14.06.2000

15. If Userstatus = 1, then return error message to sender and terminate service.

16. If UsedSize > UserSize, then send error message to sender and terminate service.

15

17. If UsedSize > UserSize\*0.9, then send reminder to sender.

## 18. Update Client Table

Field	Action	Example
ClientID	-	1234567890
ClientIncrement	-	0
ClientType	-	0
CompanyName	-	-
CompanyContact	-	-
SnailMailAddress1	-	-
SnailMailAddress2	-	-
City	-	-
ZipCode	-	-
Country	-	47
Domain	-	doe1domain.com
Admin	-	<johndoe1@doe1domain.com>
UserSize	-	1
Userstatus	-	2
UsedSize	= increment by MessageSize	23456
UsedNumber	= increment by 1	0
EndDate	-	-
StartDate	-	14.06.2000

## 5 19. Edit e-mail message header and forward to recipient:

From: "sender's address"<sent@enotarius.no> (John1 Doe1 johndoe1@doe1domain.com)

To: = Address from Receipt Table ("John2 Doe2"<johndoe2@doe2domain.com>)

Return-To: From from MessageTable ("John1 Doe1"<johndoe1@doe1domain.com>)

Subject: unchanged ("Invoice for services rendered")

10

20 If MessageTable.SignStatus = 0, then send e-mail unsigned.

21. If MessageTable.SignStatus = 1, then send signed e-mail.

15 22. If new recipient, then send information re. service provider.

23. Contents of the file "NewReceipt.txt" is sent to recipient address. This is a file designed by the service provider, and contains information about the provider and the services.

5 24. Generate transmittal reference number: MailRef = F(MailID, ClientID)  
This function (F) enters ClientID and MailID as variables and returns a password containing characters and numbers

25. Generate receipt transmittal:

10

From: ok@enotarius.no  
To: From in MessageTable ("John1 Doe1"<johndoe1@doe1domain.com>)  
Subject: "To from ReceiptTable" (John2 Doe2 johndoe2@doe2domain.com)  
Content: "Your reference number is: MailRef "

15

26. If error message re. failure to deliver mail at recipient address, then UsedSize in ClientTable is changed.

20

The foregoing description and the embodiments of the method and system according to the present invention are to be construed as mere illustrations of the application of the principles of the invention. Although e-mail is used as the example, the method and system equally applies to any electronic transmittal, and any number and constellation of senders and recipients. The foregoing is not intended to limit the scope of the claims, but the true spirit and scope of present invention is defined by the claims.

25

**CLAIMS**

What I claim as my invention is:

- 5        1. A method for recording, verifying, tracing and authenticating electronic transmittals between senders and recipients, said method comprising the steps of a service provider:
- receiving a first electronic transmittal from a sender,
  - storing an electronic code,
  - 10    - generating a unique reference code which uniquely identifies said first transmittal,
  - extracting a recipient electronic address, and
  - forwarding said transmittal to a recipient designated by said sender.
2. The method of claim 1, wherein the stored electronic code is a copy of said first  
15    electronic transmittal.
3. The method of claim 1, wherein the stored electronic code is a hash code or other control value generated as a mathematical function of the content of said first  
20    electronic transmittal.
4. The method of claim 1, wherein said first electronic transmittal is scanned in order to detect virus and if any virus is detected, said first transmittal is rejected and said sender notified accordingly.
- 25        5. The method of claim 1, wherein said unique reference code identifying said first electronic transmittal, is transmitted to said sender by a separate electronic transmittal.
6. The method of claim 1 or 5, wherein said unique reference code is made and  
30    remains selectively available to said sender.
7. The method of any one of claims 1, 5 or 6, wherein said unique reference code is generated based on the first electronic transmittal content or based on data pertaining to said transmittal or both, enabling said sender to independently and selectively deduce  
35    said unique reference code.

8. The method of any one of claims 1, 5, 6, and 7, comprising the further step of an individual in possession of said unique reference code ordering a copy of said first electronic transmittal.

5 9. The method of any one of claims 1, 5, 6 and 7, comprising the further step of an individual in possession of said reference code and a copy of said first electronic transmittal ordering a confirmation from said service provider as to whether said copy is identical to said first electronic transmittal.

10 10. The method of any one of claims 1, 5, 6 and 7, comprising the further steps of an individual in possession of an assumed copy of said first electronic transmittal submitting it to said service provider and ordering a confirmation as to whether said copy is identical to said first electronic transmittal.

15 11. The method of any one of claims 1 through 10, wherein the information contained in the electronic transmittal field for recipient name and electronic address is used by said service provider for forwarding said electronic transmittal.

20 12. The method of any one of claims 1 through 10, wherein the recipient electronic address is extracted from a field containing said recipient name, in that said address is separated from said recipient name by enclosing said address by means of parentheses, brackets, or other delimiters.

25 13. The method of any one of claims 1 through 10, wherein the recipient electronic address is extracted from a "subject" field in a header field of said electronic transmittal.

30 14. The method of any one of claims 1 through 10, wherein the recipient electronic address is extracted from a "cc" field in a header field of said electronic transmittal.

15. The method of any one of claims 1 through 10, wherein the recipient electronic address is extracted from a first line in a message field of said electronic transmittal.

16. The method of any one of claims 1 through 10, wherein the recipient electronic address is extracted from a last line in a message field of said electronic transmittal.

5 17. The method of any one of claims 1 through 10, wherein the recipient electronic address is extracted from any line in a message field of said electronic transmittal, in that said address is separated from other text in said message field by enclosing said address by means of parentheses, brackets, or other delimiters.

10 18. The method of any one of claims 1 through 10, wherein the recipient electronic address is contained in an attachment to said first electronic transmittal, said attachment having a predetermined name..

15 19. The method of any one of claims 1 through 10, wherein the recipient electronic address is communicated as a name of an attachment to said first electronic transmittal.

20 20. The method of any one of claims 1 through 10, wherein the recipient electronic address is extracted from a part of a header field of said first electronic transmittal that is available for optional text.

21. The method of any one of claims 1 through 10, wherein the recipient electronic address is extracted from a "bcc" field in a header field of said first electronic transmittal.

25 22. The method of any one of claims 1 through 21, wherein said first electronic transmittal is verified for said sender's signature and only forwarded to said designated recipient if said signature is valid.

30 23. The method of any one of claims 1 through 21, wherein said first electronic transmittal is verified for encryption and if said transmittal is encrypted, said transmittal being decrypted upon receipt by said service provider and re-encrypted before said transmittal is forwarded to said designated recipient.

35 24. In a service provider method comprising an electronic transmittal from a sender, sent to a designated recipient or a designated plurality of recipients, via the



service provider, the method comprising at least one step for extracting a recipient electronic address, said at least one step elected from the group of:

- a) extracting the recipient electronic address from a field containing said recipient name, by separating said address from said recipient name by enclosing said address by means of parentheses, brackets, or other delimiters;
- b) extracting the recipient electronic address from a "subject" field in a header field of said electronic transmittal;
- c) extracting the recipient electronic address from a "cc" field in a header field of said electronic transmittal;
- d) extracting the recipient electronic address from a first line in a message field of said electronic transmittal;
- e) extracting the recipient electronic address from a last line in a message field of said electronic transmittal;
- f) extracting the recipient electronic address from any line in a message field of said electronic transmittal, said address being separated from other text in said message field by means of parentheses, brackets, or other delimiters.
- g) extracting the recipient electronic address from an attachment to said electronic transmittal, said attachment having a predetermined name.
- h) extracting the recipient electronic address from a name of an attachment to said electronic transmittal.
- i) extracting the recipient electronic address from a part of a header field of said electronic transmittal that is available for optional text.
- j) extracting the recipient electronic address from a "bcc" field in a header field of said electronic transmittal.

25. The method of claims 1 or 24, wherein said electronic transmittals are any variety of e-mails.

26. The method of any of claims 1 through 23, wherein said service provider attaches an electronic message to said forwarded transmittal to said recipient, if the said recipient is not registered with said service provider.

27. The method of any of claims 1 through 26, wherein said service provider is selected by said sender to act as said sender's sole and regular e-mail provider.

28. The method of any of claims 1 through 27, wherein said sender and said recipient respectively are any one unit of a plurality of senders and recipients.

29. A data processing system for managing electronic transmittals, comprising

- first- and second computer processing means, each capable of generating, storing, sending, receiving, and processing electronic data transmittals;
- 5 - third party computer processing means comprising means for extracting from a sender's first electronic data transmittal, the electronic address of the recipient, as designated by the sender;
- a third party client application;
- a third party data administration means; and
- 10 - a third party database.

30. The data processing system of claim 29, wherein said third party computer processing means is capable of managing said data transmittals by:

- receiving first electronic data transmittals from a sender constituted by a unit one of
- 15 said first and second computer processing means,
- at the option of said sender, storing copies of said first electronic data transmittals along with pertinent information on a secure storage medium,
- at the option of said sender, storing a control code generated based on the transmitted content pertinent information.,
- 20 - allocating a unique reference number to individual ones of said first electronic data transmittals,
- forwarding said first electronic data transmittals to a recipient designated by said sender, constituted by at least one unit of the other one of said first and second computer processing means,
- 25 - recording, generating and storing pertinent information associated with said transmittals, and
- communicating pertinent information relative to said electronic data transmittals, to said sender and said recipient.

30 31. The data processing system of claim 30, wherein said pertinent information comprises a time stamp for when said data transmittals was sent by said sender.

32. The data processing system of claims 30 or 31, wherein said pertinent information comprises a unique reference number

35

33. The data processing system of claims 29 through 32, wherein said third party processing means further comprises:

- a) first means for receiving first electronic data transmittals from the sender;
- b) second means for returning to the sender a proof of receipt of said first electronic data transmittal, along with said unique reference number;
- c) third means for dispatching error messages to the sender;
- 5 d) fourth means for forwarding said first electronic data transmittals to the recipient designated by the sender;
- e) fifth means for receiving from the recipient, requests for copies of said first electronic data transmittals; and
- 10 f) data processor means for providing communication between said third party means and the third party storage medium.

34. The data processing system of claims 29 through 33, wherein said extracting means comprises means for extracting said recipient's electronic address from the name part of the address field in said sender's first electronic data transmittal, said address  
15 field comprising both the electronic address of said third party, and the full address of the recipient designated by the sender.

35. The data processing system of claims 29 through 34, wherein said extracting means comprises means for extracting said recipient's address from the subject field in  
20 said sender's first electronic data transmittal.

36. The data processing system of claims 29 through 35, wherein said extracting means comprises means for extracting said recipient's address from any available field in said sender's first electronic data transmittal.  
25

37. The data processing system of claims 29 through 36, comprising:

- a) means for storing said extracted address of said recipient in said third party storage medium; and
- 30 b) means for entering said extracted address in a separate, third party generated electronic data transmittal to said designated recipient, wherein such data transmittal contains said first electronic data transmittal, along with pertinent information regarding said sender and pertinent information about said third party.

38. The data processing system of any one of claims 29 through 37, comprising  
35 means for selectively obtaining a copy of said first electronic data transmittal by sending a request to said third party when said electronic transmittal has been stored and the sender has received said unique reference number.

39. The data processing system of any one of claims 29 through 38, wherein said first electronic data transmittals, stored in said third party storage medium are retrievable and comparable for authenticity with any transmittal forwarded to said third party.

40. The data processing system of any one of claims 29 through 39, wherein said third party computer processing means enables verification of an electronic signature included in said first electronic data transmittal by said sender and, having verified said electronic signature, forwards said third party electronic data transmittal including said electronic signature.

41. The data processing system of any one of claims 29 through 40, wherein said third party computer processing means has means for enabling decryption and encryption of said first electronic data transmittal.

42. The data processing system of any one of claims 29 through 41, wherein said first computer processing means is a sender and said second computer processing means is a recipient designated by said sender.

43. The data processing system of any one of claims 29 through 42, wherein said second computer processing means is a sender and said first computer processing means is a recipient designated by said sender.

44. The data processing system of any one of claims 29 through 43, wherein said first computer processing means comprises a plurality of computer processing units.

45. The data processing system of any one of claims 29 through 44, wherein said second computer processing means comprises a plurality of computer processing units.

1/14

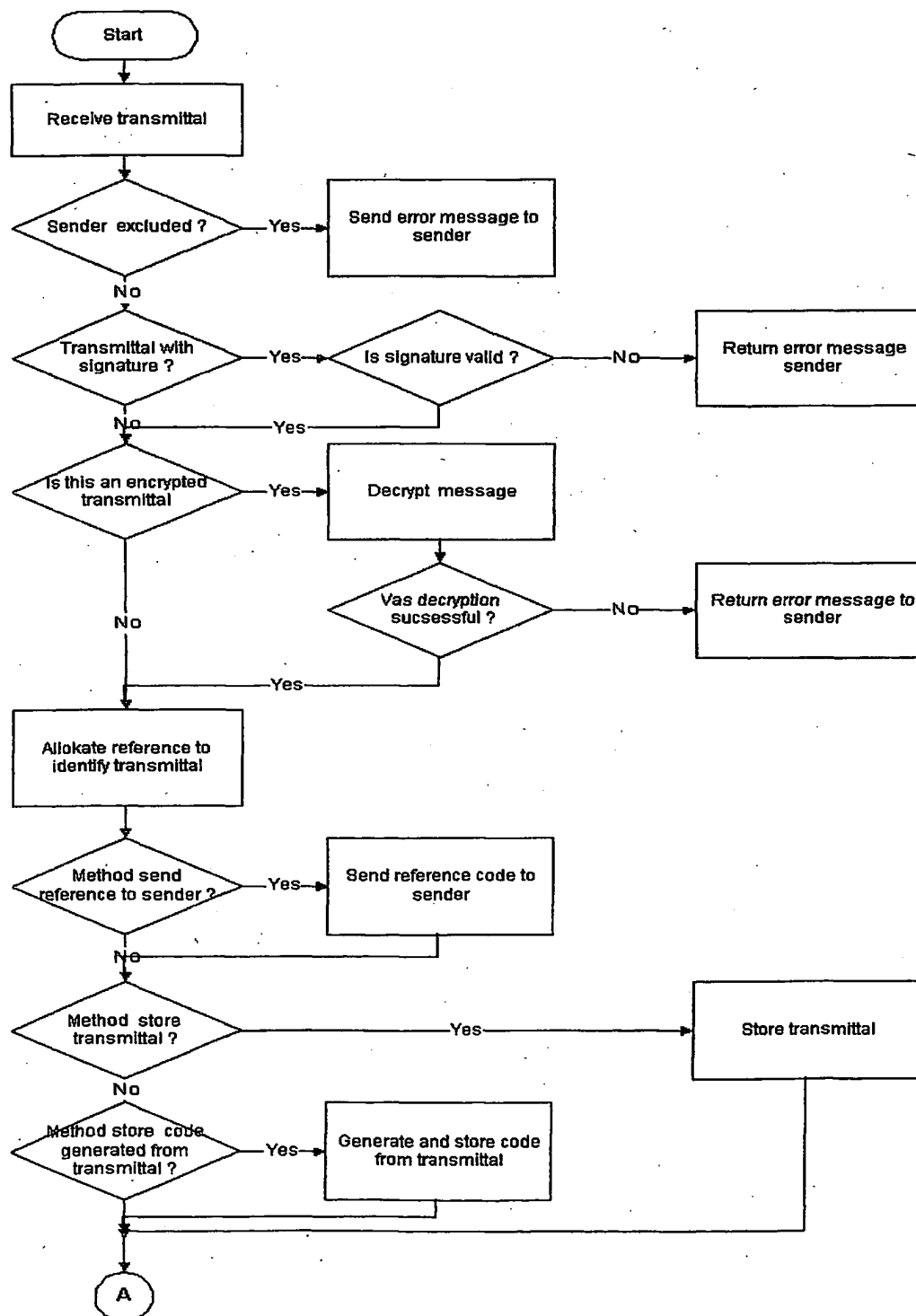


FIG. 1a

2/14

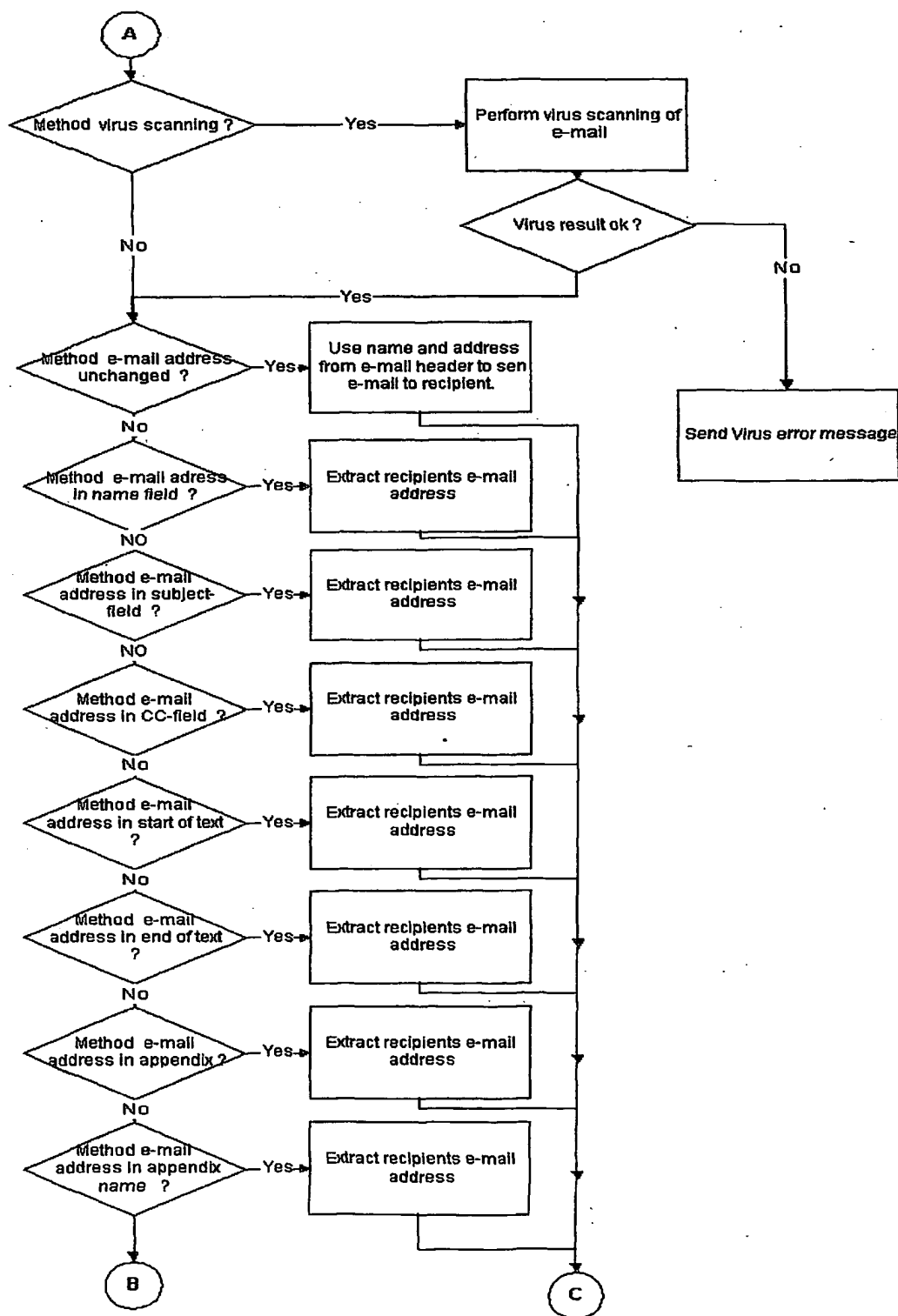


FIG. 1b

3/14

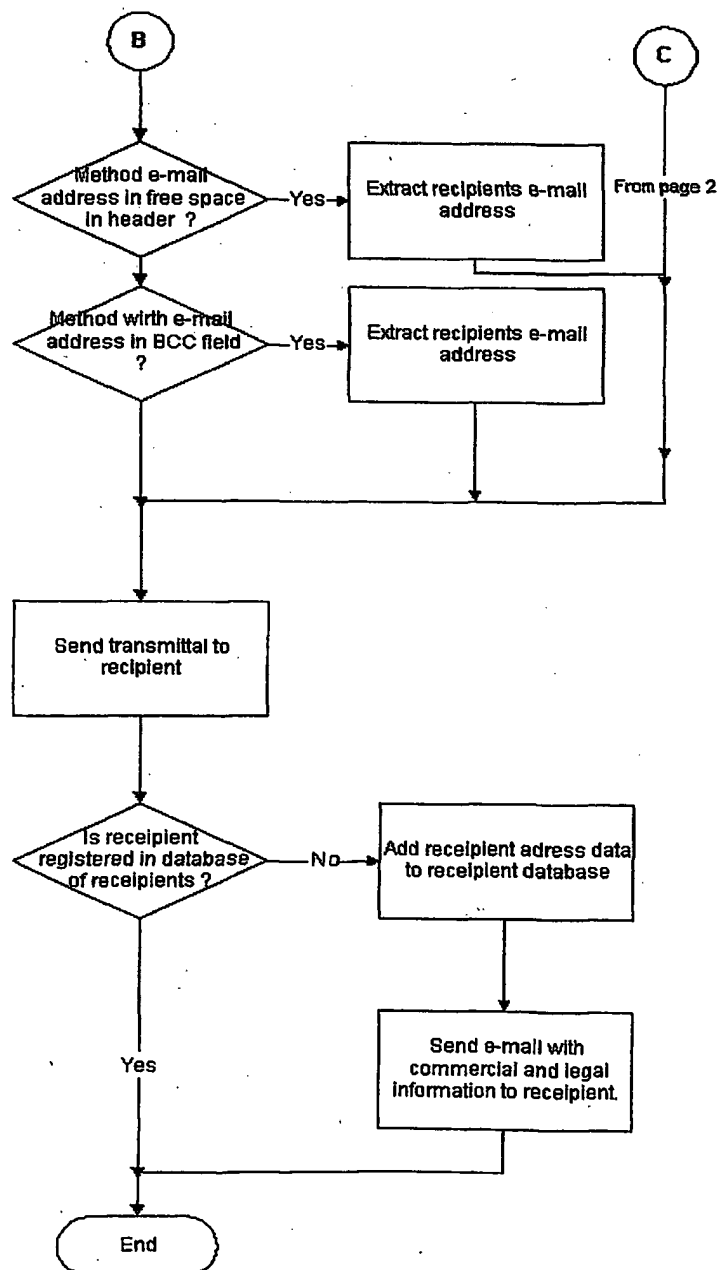


FIG. 1c

4/14

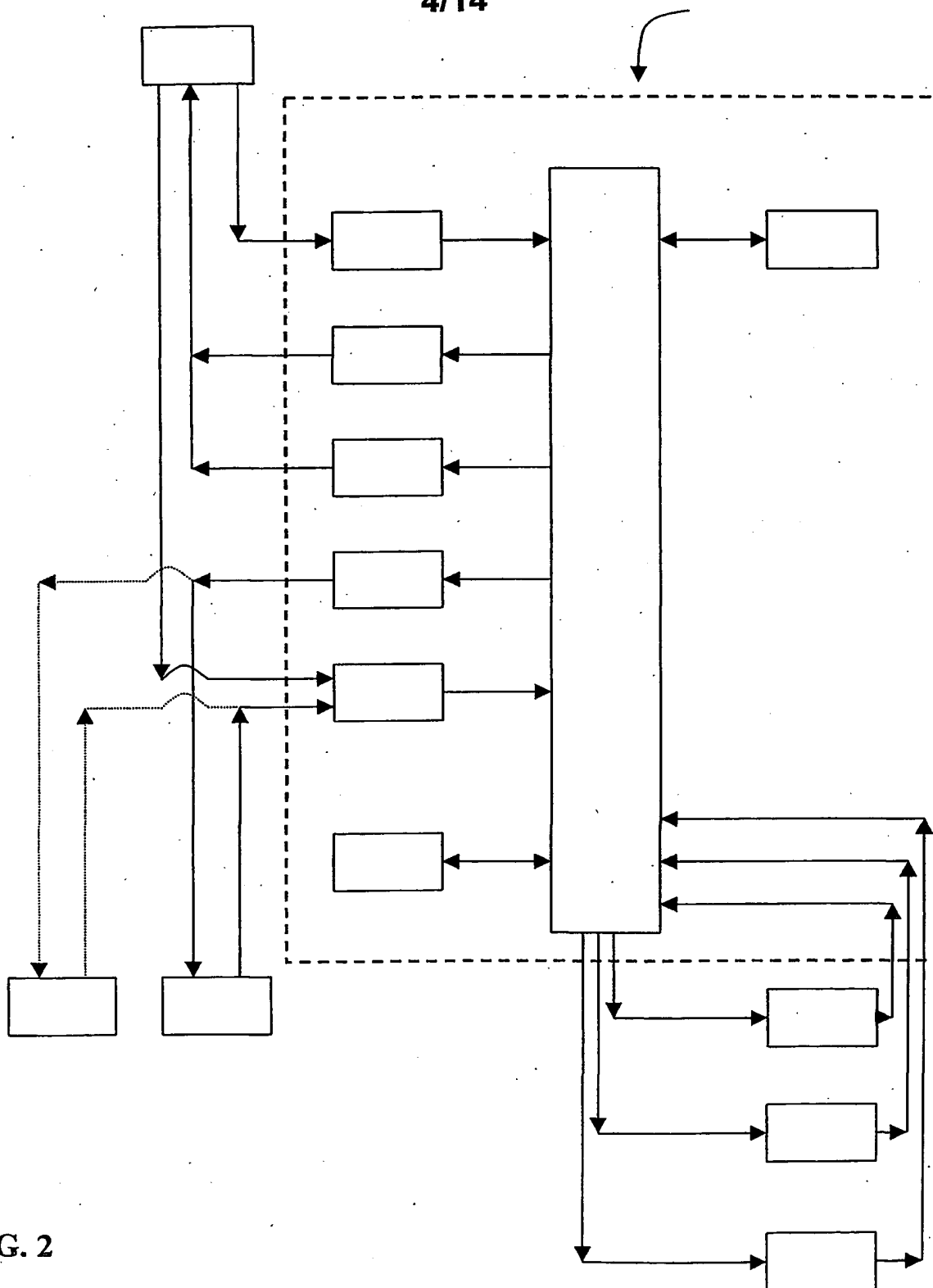


FIG. 2



5/14

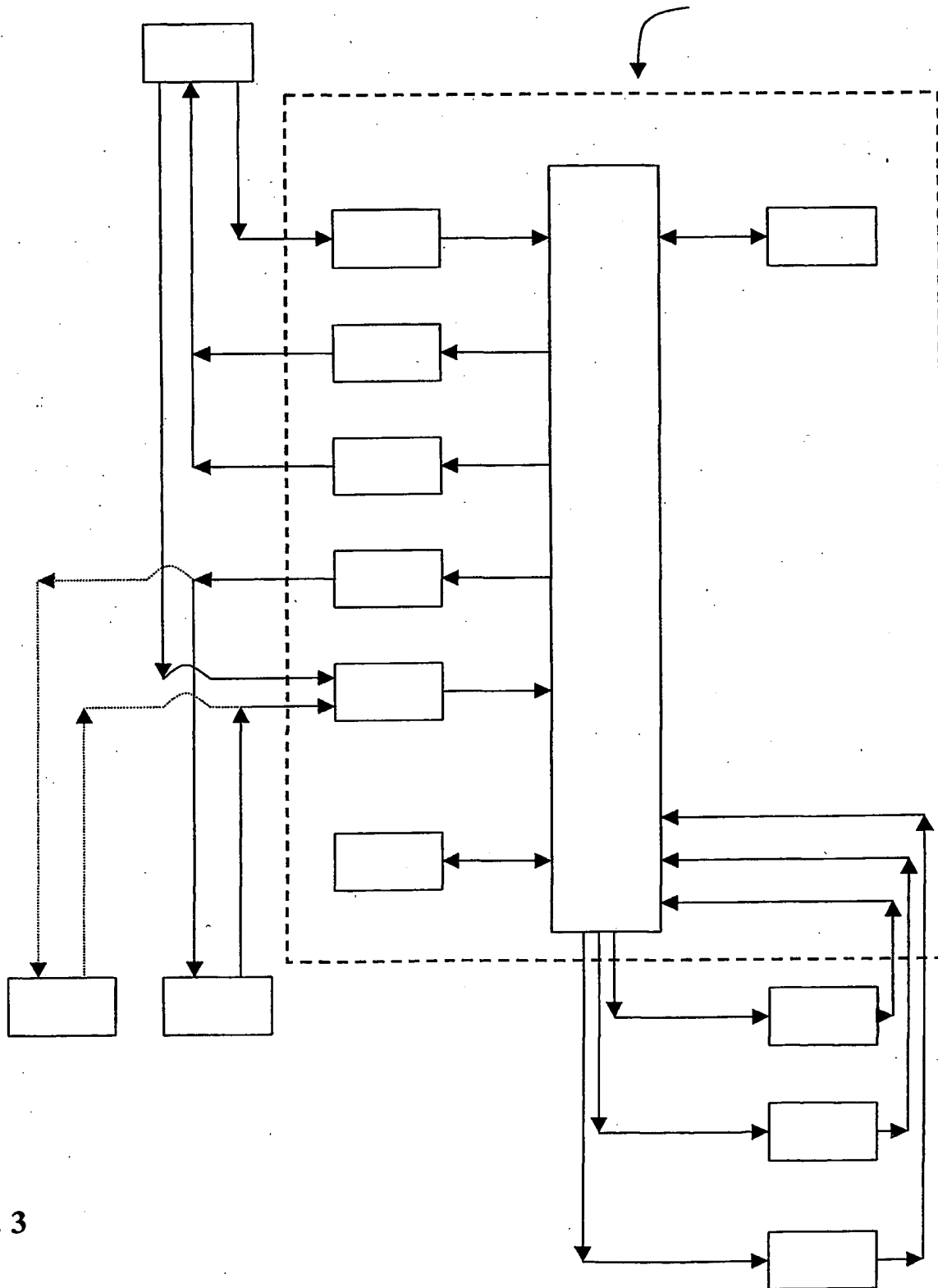
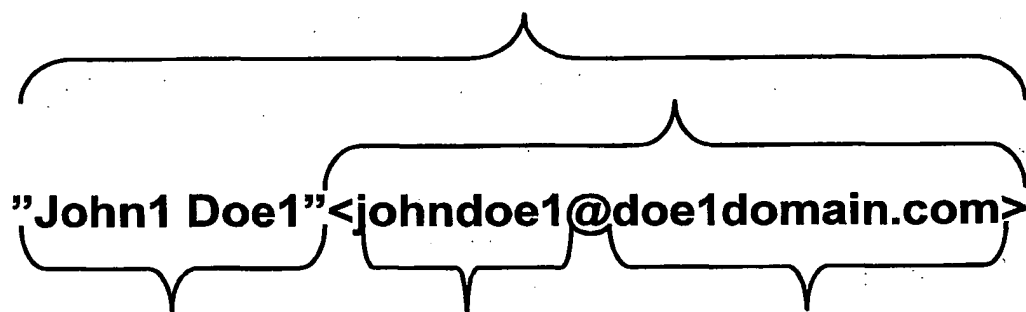


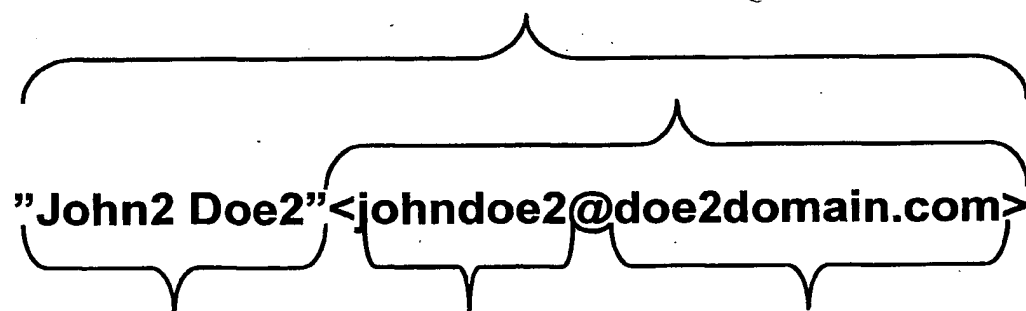
FIG. 3

6/14



The diagram shows the email address **"John1 Doe1"<johndoe1@doe1domain.com>**. It is annotated with three sets of brackets: a large top bracket spanning the entire address, a middle bracket spanning the local part **johndoe1**, and a bottom bracket spanning the domain part **@doe1domain.com**.

FIG. 4a



The diagram shows the email address **"John2 Doe2"<johndoe2@doe2domain.com>**. It is annotated with three sets of brackets: a large top bracket spanning the entire address, a middle bracket spanning the local part **johndoe2**, and a bottom bracket spanning the domain part **@doe2domain.com**.

FIG. 4b

7/14

From:	<johndoe1@doe1domain.com>	cc.:	
To:	"John2 Doe2(johndoe2@doe2domain.com)" <via@enotarius.no>	bcc.:	
Subject:	Invoice		
Message:			
Attachment:			

FIG. 5a

From:	<johndoe1@doe1domain.com>	cc.:	
To:	<via@enotarius.no>	bcc.:	
Subject:	"John2 Doe2(johndoe2@doe2domain.com)"Invoice		
Message:			
Attachment:			

FIG. 5b

8/14

From:	<johndoe1@doe1domain.com>	cc:	"John2 Doe2(johndoe2@doe2domain.com)"
To:	<via@enotarius.no>	bcc:	
Subject:	Invoice		
Message:			
Attachment:			

FIG. 5c

From:	<johndoe1@doe1domain.com>	cc:	
To:	<via@enotarius.no>	bcc:	
Subject:	Invoice		
Message:	"John2 Doe2(johndoe2@doe2domain.com)"		
Attachment:			

FIG. 5d

9/14

From:	<johndoe1@doe1domain.com>	cc.:	
To:	<via@enotarius.no>	bcc.:	
Subject:	Invoice		
Message:	<p>"John2 Doe2(johndoe2@doe2domain.com)"</p>		
Attachment:			

FIG. 5e

From:	<johndoe1@doe1domain.com>	cc.:	
To:	<via@enotarius.no>	bcc.:	
Subject:	Invoice		
Message:			
Attachment:	'Filename' containing "John2 Doe2(johndoe2@doe2domain.com)"		

FIG. 5f

10/14

From:	<johndoe1@doe1domain.com>	cc.:	
To:	<via@enotarius.no>	bcc.:	
Subject:	Invoice		
Message:			
Attachment:	'Filename'="John2 Doe2(johndoe2@doe2domain.com)"		

FIG. 5g

From:	<johndoe1@doe1domain.com>	cc.:	
To:	<via@enotarius.no>	bcc.:	
Subject:	Invoice		
Message:			
Attachment:			

FIG. 5h

11/14

From:	<johndoe1@doe1domain.com>	cc:	
To:	<via@enotarius.no>	bcc:	"John2 Doe2(johndoe2@doe2domain.com)"
Subject:	Invoice		
Message:			
Attachment:			

FIG. 5i

12/14

Field	Format	Contents	Example
MailID	number	Unique reference number on received first e-mail	12345678901234
ClientID	number	Sender's customer code	1234567890
Type	number	Type of mail 1. Via	
Country	number	National mailbox used to send e-mail.	47 = <a href="mailto:via@enotarius.no">via@enotarius.no</a> 49 = <a href="mailto:via@enotarius.de">via@enotarius.de</a>
From	address	Sender	"John1 Doe1"<johndoe1@doe1domain.com>
ReceiptID	number	Recipients's ID nummer	
Subject	text	Title of first electronic data transmittal	Invoice for services rendered
Time	time	Timestamp for arrival at third party mailbox	15/06/2000 13:57:23.852
Message Size	number	Size of first electronic data transmittal (Bytes)	12367
Message Status	number	0 = Recieve_error 1 = Recieve_ok 2 = Transmitted_to_recipient 3 = Transmit_Error_recieved	Transmitted_to_recipient
Sign Status	number	0 = unsigned 1 = signature ok	0

FIG. 6



13/14

Field	Format	Contents	Example
ClientID	number	Sender's klient number	1234567890
Increment	number	Incremented each time the client requests a new password	0
Type	number	0=not registred 1=individual client 2=corporate client 3=corporate client, multiple accounts	2
CompanyName	text	corporation or individual name	John2 Doe2 Inc.
CompanyContact	text	name of contact person	Jane2 Doe2
PostalAddress1	text	mail address	Boks 9001
PostalAddress2	text	street address	Eventyrveien 23
City	text	town	DRAMMEN
ZipCode	number	posal code (e.g. zip code)	3001
CountryCode	number	47 = Norge	47
Domain	text	customer e-mail domain	doe2domain.com
Admin	text	administrator's e-mail address or client e-mail address	johndoe2@doe2domain.com
UserSize	number	1=100KB 2=1MB 3=10MB 4=100MB 5=1GB 6=10GB 7=100GB 8=1TB 9=10TB	2
Userstatus	number	1=Inactive 2=Active	2
UsedSize	number	number of bytes accumulated forwarded e-mail	345128
UsedNumber	number	number of forwarded messages	23
EndDate	Date	time of account expiry	5.6.2001
StartDate	Date	time of creating account	5.6.2000

FIG. 7

**14/14**

Felt	Format	Innhold	Eksempel
ReceiptID	number	recipient reference number	123
Address	text t	recipient address	"John2 Doe2"<johndoe2@doe2domain.com>
Firsttime	date	Tid for første mottak av e-post	30.1.00.14.32.333
Number	number	Antall meldinger som er mottatt	14

**FIG. 8**

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/NO 01/00425

## A. CLASSIFICATION OF SUBJECT MATTER

IPC7: H04L 12/58, G06F 17/60

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: G06F, H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-INTERNAL, WPI DATA

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 0010288 A1 (OMNIPPOINT CORPORATION), 24 February 2000 (24.02.00), page 2, line 32 - page 3, line 37, figure 2, claims 1,25, abstract --	1-45
P,X	WO 0110090 A1 (TOMKOW, T.A.), 8 February 2001 (08.02.01), page 4, line 6 - page 5, line 19, claim 1, abstract --	1-45
A	EP 0841789 A2 (NIPPON TELEGRAPH AND TELEPHONE CORPORATION), 13 May 1998 (13.05.98), column 5, line 56 - column 7, line 15, abstract --	1-45

☒ Further documents are listed in the continuation of Box C.
 ☒ See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"I" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&amp;" document member of the same patent family

Date of the actual completion of the international search

Date of mailing of the international search report

5 February 2002

12-02-2002

Name and mailing address of the ISA/

Swedish Patent Office

Box 5055, S-102 42 STOCKHOLM

Facsimile No. +46 8 666 02 86

Authorized officer

Pär Heimdahl /OGU

Telephone No. +46 8 782 25 00

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/NO 01/00425

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6073125 A (CORDERY, R.A. ET AL), 6 June 2000 (06.06.00), column 1, line 59 - column 2, line 30, claim 1, abstract  -----	1-45

**INTERNATIONAL SEARCH REPORT**  
Information on patent family members

International application No.  
**PCT/NO 01/00425**

Patent document cited in search report			Publication date	Patent family member(s)		Publication date
WO	0010288	A1	24/02/00	AU EP	5244599 A 1145485 A	06/03/00 17/10/01
WO	0110090	A1	08/02/01	AU	6610300 A	19/02/01
EP	0841789	A2	13/05/98	CA JP US	2214911 A 10145356 A 6115472 A	11/03/98 29/05/98 05/09/00
US	6073125	A	06/06/00	NONE		